

# L2 Theme development in Discursive and Experimental undergraduate student writing

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Accepted manuscript deposited in Coventry University's Repository

**Original citation:**

Chen, X. and Gardner, S., 2021. L2 Theme development in Discursive and Experimental undergraduate student writing. *Register Studies*.

<https://doi.org/10.1075/rs.20018.che>

DOI [10.1075/rs.20018.che](https://doi.org/10.1075/rs.20018.che)

ISSN 2542-9477

ESSN 2542-9485

Publisher: John Benjamins

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Final published version available to subscribers via the DOI provided above.

## **L2 Theme Development in Discursive and Experimental Undergraduate Student Writing**

To complement earlier studies of writing development in the BAWE corpus of successful student writing (Nesi & Gardner 2012; Staples et al. 2016), we examine the Systemic Functional Linguistics notion of Theme as used by L2 writers across first and third year and in two distinctive discourse types: persuasive/argumentative Discursive writing of assignments in the soft disciplines and Experimental report writing of assignments in the hard sciences. Theme analysis reveals more substantial differences across the two discourse types than between first and third year in L2 undergraduate writing. Textual Themes are consistently more frequent than interpersonal Themes, and some variance is found within subcategories of each. Significant differences in lexical density occur across third year discourse types and between first and third year Experimental writing where a predominance of N+N topical Themes is also found. These findings are important as previous research has tended to focus on L1 Discursive writing.

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**Keywords:** Theme, Second Language Writing Development, Academic Writing across Disciplines, BAWE corpus.

### **1. Introduction**

Many studies of L2 writing development focus on short texts (fewer than 500 words) written for the purpose of displaying English proficiency (e.g., Lu 2017, Chang & Lee 2019). Although there has been some account taken of differences in genre, this tends to compare genres described as argumentative vs narrative writing. Moreover, such writing is often timed and written in exam conditions. The demands of such writing are very different from the demands of university study.

Studies of naturally occurring university writing in the disciplines (e.g. Nesi & Gardner 2012) demonstrate that such writing is longer (several thousand words), is often take-home, so more amenable to revision, and is generally assessed primarily for its content, though the language has to be good enough to express complex theories, concepts, ideas and arguments, and there may be a specific component of the grade for ‘language’, ‘register’ and/or ‘organisation’. With such differences in situational context (between short English tests and longer assignments in the disciplines), we would expect differences in Theme.

Studies of university writing development (e.g., Aull & Lancaster 2014; Staples, Egbert, Biber & Gray 2016) tend to examine discursive writing, and to focus on the development of argumentative essay writing in L1 (first language) users of English. To explore how relevant findings from such studies might be to a wider population, we examine here the writing of second language (L2) users of English, and include a contrast between the two main discourse types of university writing that we identify here as Discursive writing and Experimental writing.

This paper aims to explore the development of Theme in L2 writing through a cross-sectional study of authentic university assignments in the L2 Development (L2Dev) Corpus of texts taken from the BAWE corpus of successful student writing. The assignments selected are all written by students who declared that English is not their first language. The assignments are from a range of disciplines and genre families, that have been grouped to represent ‘Discursive’ and ‘Experimental’ writing.

We focus here on the student use of Theme for a number of reasons. The Systemic Functional Linguistics (SFL) concept of Theme (Halliday & Matthiessen 2004, 2014) examines the way writers organize their texts with a focus on sentence beginnings, which is where thematic meanings are realized in English, and on the three fundamental metafunctions, or ways of meaning: textual, interpersonal and ideational. Effective use of Theme is crucial in proficient academic writing (e.g. He 2020, Jing 2014): it functions to organize and shape the text most notably through the use of textual and topical Theme. An examination of interpersonal Theme also provides a window on writer stance and evaluation of the message.

## 2.0 Theme in Academic Writing

Theme is particularly important in academic writing because of the way it structures the development of a text. This is important in reading – one effective strategy for skim reading is to read the headings (including labels for tables, figures etc.) and first sentences of each paragraph (effectively the macro-Themes and hyper-Themes) to grasp the purpose and development of the text. This informs us about the genre and the overall message conveyed. Conversely, student writing can be supported by encouraging students to explain the intent and contribution of each section, or providing prompts such as initial sentence fragments to help writers get started in an appropriate direction.

The Theme ‘locates and orients the clause within its context’ or serves as the ‘point of departure of the message’ (Halliday & Matthiessen 2014:89), and although the function of Theme is realised by initial position in English, there are languages where it is differently realised (*ibid*:88).

Disciplinary differences have also been observed in Theme use in academic writing. Hewings and North compared university student essays across disciplines and found that unlike unmarked Themes which are realized by the Subject in declarative clauses, marked Themes realised by circumstantial adjuncts and dependent clauses occurred in 15.5% of t-units in Geography essays compared with 20.7% in History of Science essays (2006:271). History tended to have more adjuncts of time and place in Theme position, where Geography tended to have more of reason.

A different picture emerged when multiple Themes were examined (i.e. where a textual and/or interpersonal Theme occurs with a topical theme) across year of study and across disciplinary background: Substantially more t-units had multiple Themes in 3<sup>rd</sup> year Geography compared to 1<sup>st</sup> year, and substantially more t-units had multiple Themes in History of Science texts by students from an Arts background than from a Science background. Textual Themes occurred in 27.2% of 3<sup>rd</sup> year Geography texts compared with 15.8% of 1<sup>st</sup> year texts; Interpersonal Themes occurred in 13.1% compared with 5.7%. In both Geography and History of Science, the use of multiple Themes was associated with higher marks (2006:274). It was suggested that the interpersonal Themes interpret the propositions, rather than presenting them as facts. In contrast, the textual Themes organise the arguments explicitly for the readers. There is therefore clear evidence in L1 university texts of Theme development from first to third year, mitigated by disciplinary differences.

Ebeling and Wickens (2012) extended North’s study to examine Themes in essays by L1 English writers in six disciplines from BAWE. They found little difference across disciplines in textual and topical Themes, and so focused on interpersonal Themes, with subcategories including personal and non-personal projecting clauses (*Orwell suggests* vs *It is possible that*), and modal adjuncts (*Clearly*).

... on average, every tenth t-unit contains an interpersonal Theme in both English Studies and Engineering. .... While English Studies sees a more or less even spread between personal projecting clauses, non-personal projecting clauses and modal adjuncts, Engineering favours non-personal projecting

clauses and the imperative. [Students of] Health & Social Care and Anthropology ... tend to use twice as many interpersonal Themes in their writing than was the case in English and Engineering. .... both these disciplines favour projecting clauses (2012:30).

They argue that such differences in projecting interpersonal Themes reflect the different ways disciplines engage with the literature and the objects of study (2012:24).

Aull and Lancaster include Theme as part of a wider study of stance in their comparison of first year and upper level writing by students in two American universities. They include in stance interpersonal features such as hedges and boosters, as well as more textual features such as contrastive connectors and code glosses (2014: 5). Their corpus includes only what we call Discursive writing in that the papers correspond to the MICUSP categories of argumentative essay, critique/evaluation and response paper. Thus although they have papers from across a number of disciplines, the corpus is loaded towards English majors, and although there are papers written by students in the sciences, these do not include Experimental discourse (i.e. no lab reports or similar).

From first year to upper year papers, Aull and Lancaster found a decrease in hedges and boosters (e.g. *very, highly, much, a lot, definitely, extremely, really, truly, obviously*) (2014:11), an increase in approximate hedges (*apparently, essentially, generally, primarily, largely, often, somewhat*) (2014:12); an increase in reformulation and exemplification (*in other words, for instance*) (2014:15); and in contrastive expressions (*in contrast, on the other hand, alternatively, rather*) (2014:19); but little difference in concessives (*however, although*) (2014:20). They conclude, cautiously, that academic writing development involves increasing recognition of one's own views in relation to those of others. This conclusion echoes Hewing's observations about the increasing use of interpersonal Themes to interpret rather than present propositions in upper level writing.

Topical Themes carry ideational meaning<sup>1</sup> and are typically realised as grammatical Subject. They provide continuity of participants and index the angle on the field or topic through their level of abstraction or technicality. They can be realised congruently, as in *the boy*, or metaphorically, as in *the pursuit*.

An early study related to Theme in texts in the BAWE corpus built on the SFL insights into technicality and abstraction in a study of Initial Sentence Subjects (Gardner 2008) and what they reveal about angle on field. The Subjects from the first sentence of university student assignments from the BAWE pilot corpus were isolated to examine their 'angle on field' (Martin 1993:224) – the perspective taken on the topic. This revealed a progression from specific entities (famous people, places, events, texts) to more abstract concepts. For example, first year student assignments might begin with *The Dutch Republic, Memory, or Escherichia coli O157:H7*, where their second and third year students assignments initial sentence subjects might be *the accepted view amongst historians of Mexico, the work of Jean Piaget, the liar paradox or examination of the subcellular distribution of molecules*.

'Ideational meaning is related to the construction of institutional activity ('naturalised reality') (Martin 2002:56). In this way, Initial Sentence Subjects construe not simply which real world entities are referred to, but rather how disciplinary reality is construed at different levels of study. Topical Themes can also be examined from the perspective of grammatical complexity. It is not surprising then that progression from first to final year in student writing also demonstrates an increase in nominalisations (*pursuit*), in noun premodification (*liar paradox*), and in post modification with *of* phrases (*the work of Jean Piaget*). Recent more quantitative studies (e.g. Staples et al. 2016) show that these are all significant features in the development of university student writing for L1 writers.

Staples et al. found a general trend of decrease in finite clauses and increase in phrasal features. All phrasal features increased by level (nouns, nominalisation, *of* genitives,

premodifying nouns, attributive adjectives and prepositional phrases); the effect size was 'fairly low' (2016:162). Among these the most robust findings were for premodifying nouns, which increase in Essays from first to third year (2016:172).

A developmental path of nominal groups (noun phrases) has been proposed for English and supported by studies of noun phrase development in L1 (Staples et al. 2016) student writers. Basically, as students progress through university, their writing shows greater phrasal complexity (and density), and less clausal complexity. While these studies have not focused on nominal groups in Theme position, because topical Theme is typically realised by Subject, an analysis of topical Themes can illuminate development in the grammatical complexity of nominal groups.

This review has found evidence that in undergraduate L1 English student writing the number of interpersonal and textual Themes not only increases with level of study, but is also associated with higher marks (Hewings & North 2006), yet there is a move away from sentence complexity with dependent clauses to increased phrasal density (Staples et al. 2016) which can be observed in topical Themes. These results for L1 English draw on different groups of student writing, across different disciplines, and are difficult to reconcile, but they do reinforce the need to acknowledge the three different Themes play different roles and therefore it is important to consider textual, interpersonal and topical Themes separately.

## **2.1 Studies of Theme in L2 writing**

Contrastive studies of L2 writing in English have found that some Chinese writers to their detriment use less nominalisation in Theme position in medical papers than English writers (Gao 2012); that some Norwegian writers, influenced by their first language, tend to thematise adverbials (Hasselgård 2009); and that some Swedish writers use more interactional Themes, creating a more dialogic, conversational method of development in texts than English writers (Herriman 2011). This suggests that L2 writers use of Theme can be influenced by the writer's L1 in different respects, and that this can be perceived as detrimental when compared to an academic English norm.

Research on Theme use comparing EFL, ESL and L1 writers in expository writing (Chang & Lee 2019) suggests that there is a developmental progression in terms of textual Themes (from EFL to ESL to L1, where EFL is represented by Mandarin students, ESL is represented by Singaporean students, and L1 is represented by professional writers whose first language is English) but little difference in interpersonal Themes across the three groups. In other words, Chang and Lee's examination of short essays written for language display purposes suggests that L2 writing does not demonstrate the development of interpersonal Theme seen by Hewings and North or Aull and Lancaster for L1 writers. Our study examines the use of Theme by L2 writers of longer texts written for an audience of content lecturers, and will therefore provide an answer to whether it is the L2 nature of the writer or the length, audience and purpose of the texts that has a greater influence on interpersonal Theme choice.

Leedham's research used a combination of BAWE data and other data collected for her PhD to compile a corpus of proficient student writing by English students, and by Chinese students educated in China across 12 disciplines, grouped into two levels: first and second year undergraduate and third year undergraduate. One notable finding is a decrease in use by Chinese students in most connectors (*on the other hand, besides, at the same time, in the long run*), and that this decrease brings them closer to English student use. This pattern did not hold true for *however* or *nevertheless*. "Examination of concordance lines from individual texts suggests that the overall reduction ... is due to an increase in the use of other connecting devices and of more varied ways of achieving cohesion in text." (Leedham 2015:67). This finding is similar to Chang and Lee's study where L1 writers used fewer textual Themes and more varied ways of achieving cohesion across texts than the L2 writers.

A second study of Chinese vs English writers in the BAWE corpus by Han and Gardner (2021) reported on the establishment of a closely matched corpus, the Han CH-EN corpus, in which each text by a Chinese overseas educated student was matched as closely as possible for topic with a text from the same level, discipline and genre family by a British educated English speaking student. They identified 46 transition markers and found striking parallels in use by the two groups, with no significant differences in sentence initial position (i.e. Theme position).

Leedham (2015) and Han and Gardner (2021) both use BAWE data, yet the results on the use of linking adverbials, connectors and transition markers are conflicting. Leedham shows a decline which approximates L1 English use in most connectors for L2 Chinese users over levels of study; while Han and Gardner shows no significant difference between native speakers of English and Chinese writers in sentence initial position. Both considered writing across disciplines. These apparent contradictions presumably reflect the different data sets and suggest it will be worth exploring not simply the presence or absence of textual Themes, but also the functional types of textual Themes occurring in the L2Dev corpus.

Finally, it is worth mentioning a study by Parkinson and Musgrove (2014) that shows a developmental path for noun groups from L2 pre-university students to 'Masters' students. An increase is observed in N+N groups, approximating professional writing. Such development can be observed throughout the clause, and in terms of Theme is most likely to occur in topical Theme position.

In summary, differences might be expected if we compare the use of Theme in short in-class tests to longer take-home assignments. Studies of longer take-home assignments, however, also find the evidence on the use of textual and interpersonal Theme in L1 and L2 writing development is inconclusive. Textual Theme use appears to increase in L1 writing (e.g. Hewings) and to decrease in L2 writing (e.g. Leedham 2015), although some studies found no significant differences (e.g. Ebeling & Wickens 2012, Han & Gardner 2021). Interpersonal Themes are found to increase for L1 (e.g. Hewings) and to be differentiated more by discipline (Ebeling & Wickens 2021) with evidence for L2, albeit for shorter texts, suggesting no significant difference (Chang & Lee 2019). The evidence on topical Theme is more consistent, with studies of writing in L1 (e.g. Gardner 2008, Staples et al. 2016) and L2 (e.g. Parkinson & Musgrove 2014) suggesting that nominal groups increase in complexity and density with writing development. It is also worth noting that the majority of these studies examined discursive writing, and none really considered the experimental writing found in scientific reports where we might also expect to find evidence of writing development in an examination of L2 Theme. Our paper therefore aims to add to the findings of previous studies in respect to the development of textual, ideational and topical Theme development in undergraduate writing, specifically by examining L2 writing in the context of comparisons of Discursive and Experimental writing. It is hoped that our decision to compare Discursive and Experimental writing will not only lead to novel findings but will also yield findings with practical significance for L2 teaching and learning.

### **3. Methodology**

In order to investigate how L2 writing develops at university, this paper compares successful first and third year undergraduate assignments written by L2 students selected from the BAWE corpus to form the L2Dev corpus. We assume there will be differences between the persuasive/argumentative Discursive writing of the soft disciplines and the more factual, Experimental writing of the sciences, and therefore that it will be important to consider these discourse types separately.

We also assume that an examination of how the three metafunctions (textual, interpersonal and ideational) are realized in Theme position will illustrate general trends in

these discourses, and that an examination of specific Theme subcategories will reveal features that characterize these differences.

### **3.1. Research Questions**

Based on our review of Theme categories in the writing of L1 and L2 university students in English, we investigate the following questions:

1. What changes from first to third year, if any, does L2 student writing show in the use of Theme groups across Discursive and Experimental texts?
2. What changes from first to third year, if any, does L2 student writing show in its use of subcategories of Theme across Discursive and Experimental texts?

We first describe the corpus compiled to investigate these questions, then using the UAM Corpus Tool we examine differences across Theme groups, followed by differences across subcategories of the three Theme groups (textual, interpersonal and ideational).

### **3.2. The L2Dev Corpus**

The texts in our study have been taken from the BAWE corpus of successful student writing to form the L2Dev corpus. We developed a closely matched data set of writing by students who were educated overseas and reported a language other than English as their first language that could be reasonably compared across levels of study. We refer to English here as L2, following the conventions of this special issue. It could equally be referred to as LX in that English might be a second or third language for the writers (see Dewaele 2018). Over 15 different first languages are represented in our corpus, including Chinese, Japanese, Sinhalese, Hindi, Turkish, French, German, and Italian (see Appendix A for details of the texts in the L2DEV research corpus).

As many earlier studies have focused on essays, and we know that discipline consistently emerges as a primary influence on academic writing, we grouped the BAWE genre families of Methodology Recount<sup>3</sup>, Design Specification and Explanation from the Life and Physical Sciences together. Although they differ in their orientation (one recounts past events, one plans for future activity and the third is generally ‘true’), they are concentrated in the Life and Physical Sciences and share many features of the hard disciplines and scientific writing. We call these ‘Experimental’. The language of these assignments can be characterized as factual and logical in its development. In the bespoke register analysis of the BAWE corpus, the register associated with these genre families and disciplinary groups emerged as strongly loaded on positive pole of the first dimension. It was labelled ‘Compressed Procedural Information’. As Gardner, Nesi and Biber (2019:657) describe, “These texts tend to be densely written, with long scientific nominal groups (noun premodifiers, common, concrete, quantity nouns) and a focus on concisely reporting experimental procedures through passive action verbs.”

In contrast, Critiques and Essays are grouped here as ‘Discursive’. As with all the genre families, there are a number of different Essay and Critique genres, including exposition or discussion Essays, and book review or artefact appraisal Critiques. They share a more discursive language that is persuasive, argumentative and interpretive where students are expected to demonstrate their personalized and independent reasoning. In the bespoke register analysis of the BAWE corpus, they can be associated with two dimensions: the negative pole of Dimension One which is labelled ‘Stance towards the work of others’ which groups stance nouns and adverbials with communication verbs, third person pronouns and proper nouns, as

well as the positive pole of the fourth Dimension which groups long words, nominalisations, attributive adjectives and abstract nouns.

The majority of Essays and Critiques are found in Arts & Humanities and Social Sciences, where the majority of Explanations, Design Specifications and Methodology Recounts are found in the Life and Physical Sciences. Case Studies are found in both Social Sciences (notably Business) and in Life Sciences (notably Medicine) and are not included here because of their disciplinary span and because in the L2 data collected they were only found in Social Sciences. (See Nesi and Gardner 2012:51-52 for more details of genre family distribution in the entire BAWE corpus). The finalized L2Dev corpus (see Appendix A) features five disciplines from Arts & Humanities (English, Applied Linguistics, Archaeology, History and Philosophy), six disciplines from the Social Sciences (Anthropology, Law, Sociology, Politics, Hospitality, Leisure & Tourism Management (HLTM), and Business) and six disciplines from the Life and Physical Sciences (Agriculture, Biological Sciences, Food Sciences, Computer Science, Engineering, and Cybernetics & Electronic Engineering).

In order to develop sharp contrasts across the years of study and discourse types, we removed texts by students who were educated in the UK (e.g. British-born Chinese, or Welsh-English bilinguals), texts longer than 4,500 words (including group projects), and duplicate files by individual students (to reduce idiosyncratic bias).

To ensure accuracy, the texts were processed manually to remove meta-text annotations and formatted properties such as figures, tables, lists, titles, headings, abstracts, notes, and block quotes. The resulting corpus is presented showing number of texts and words in Table 1.

**Table 1: L2Dev Corpus 2x2 Design by Year of Study and Discourse Type**

	<i>DISCURSIVE DISCOURSE</i> (DIS)		<i>EXPERIMENTAL DISCOURSE</i> (EXP)		<b>TOTAL Texts (words)</b>
	Social Sciences	Arts & Humanities	Physical Sciences	Life Sciences	
1 <sup>st</sup> Year (Y1)	6 (8,899)	6 (12,900 )	6 (8,343)	6 (5,255)	<b>24 (35,397)</b>
3 <sup>rd</sup> Year (Y3)	6 (15,824)	6 (15,331)	6 (6,989)	6 (13,710)	<b>24 (51,854)</b>
	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>48 (87,251)</b>

### 3.3. General linguistic characteristics of the L2Dev Corpus

The 48 texts comprising 87,251 words of the L2Dev Corpus were loaded into the UAM Corpus Tool 3 (O'Donnell 2014) downloaded from <http://www.wagsoft.com/CorpusTool/>. The general characteristics of length and lexical density of the texts were first calculated to capture possible developmental trends which, we believe, can provide a basis and reference for the investigation and discussion of development in Theme.

As shown in Table 2, from first to third year, the average length of words increases from 4.91 to 5.13 letters; and the average text length increases from 1475 to 2160 words. As



mentioned in the Introduction, the data for this paper consists not of short compositions, but of long academic assignments in the disciplines.

While the text length may pose a challenge to some writers, it reflects the expectations of the assignment brief. Another comparison for writing development is lexical density, or the proportion of lexical to grammatical words, which like length increases from first to third year. Table 2 shows a significant increase from an average of 51% in first year rising to 55% in third year ( $p<0.05$ ).

**Table 2: L2 Length and Lexical Density by Year of Study**

	Y1	Y3
LENGTH		
Number of Texts	24	24
Words in Texts	40425	59901
Av. Word Length	4.91	5.13
Av. Text Length	1474.88	2160.58
LEXICAL DENSITY		
Lexemes per text	755.33	1192.88
Lexemes % of text	51.21	55.21

When length and lexical density are broken down for Discursive vs Experimental writing (see Table 3), we see the same trends, but while Experimental texts are generally shorter than Discursive texts, their word length and lexical density in 3rd year are greater, at 5.27 words and 57.47%. The data in Table 3 suggests that the differences between Year 1 and Year 3 L2 student writing reflect not only the increasing length expected by the assignment briefs, but also an increasing sophistication as suggested by the longer words and greater lexical density found in 3<sup>rd</sup> year, particularly in the Experimental scientific writing. The lexical density rate of EXP-Y3 is considerably higher than not only EXP-Y1 but also DIS-Y3 ( $p<0.01$ ). The differences in lexical density between other data sets, however, are not statistically significant.

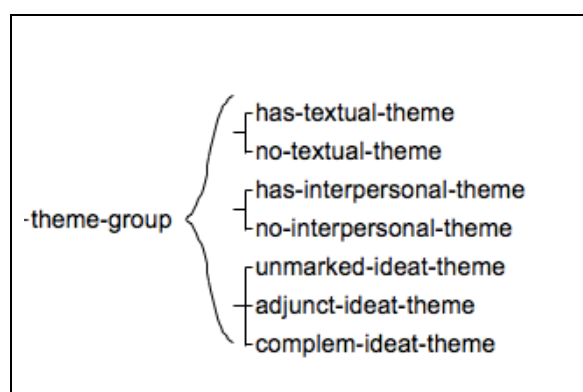
**Table 3: L2 Length and Lexical Density by Year of Study and Discourse Type in L2Dev**

	DIS-Y1	EXP-Y1	DIS-Y3	EXP-Y3
LENGTH				
Number of Texts	12	12	12	12
Words in Texts	24495	15930	36187	23714
Av. Word Length	5.04	4.72	5.04	5.27

	DIS-Y1	EXP-Y1	DIS-Y3	EXP-Y3
Av. Text Length	1768.50	1181.25	2596.25	1724.92
LEXICAL DENSITY				
Lexemes per text	908.00	602.67	1394.42	991.33
Lexemes % of text	51.34	51.02	53.71	57.47

### 3.4. Theme Analysis

Theme was tagged in the corpus also using The UAM Corpus Tool according to the scheme developed by O'Donnell (2014). The Theme-Rheme structure of a clause was first analyzed according to Halliday's method of identification, i.e. "the Theme of a clause extends from the beginning up to, and including, the first element that has an experiential function" (Halliday & Mathiessen 2004:85). The Themes were then classified into three Theme groups, ideational (topical), textual and interpersonal (see Figure 1).



**Figure 1 Annotation scheme for Theme groups using UAMCT**

Using this system of annotation, the Theme of Example 1 consists of the sentence-initial conjunction *Therefore* as the textual Theme and the first experiential constituent *these ideas of sensory perceptions* as the topical theme.

(1)

<i>Therefore, these ideas of sensory perceptions could only have originated from my body or God.</i>		
Theme		Rheme
Textual	Ideational	

The clauses in compound sentences are treated in the same manner. In Example 2, the Theme-Rheme structure of each coordinate clauses is coded. The Theme of the first clause contains only a topical element '*The liquid from the previous assay*' while the second clause has a multiple Theme with *and* as the textual Theme and *the absorbance* as the topical Theme.

(2)

*The liquid from the previous assay was removed using a pipette and the absorbance was measured.*

Element		Element	
Theme	Rheme	Theme	Rheme
Ideational		Textual	Ideational

Complex sentences were annotated first on the sentence level using the above-mentioned method of identification of Theme (Halliday & Mathiessen *ibid.*). The sentence Rheme, whether it contains subordinate clauses or not, is not further annotated (see Examples 3, 4, and 5). When the sentence Theme is a clause, however, its Theme-Rheme structure is further annotated (see Example 6).

(3)

*Naturally , one may assume that they construct gender and gender roles in different ways.*

Theme	Rheme
Interpersonal	Ideational

(4)

*This results from the fact that not all cells begin to grow at the same time.*

Theme	Rheme
Ideational	

(5)

*The Good Soldier therefore offers a new perception of gender where the roles of man and woman might have been changed.*

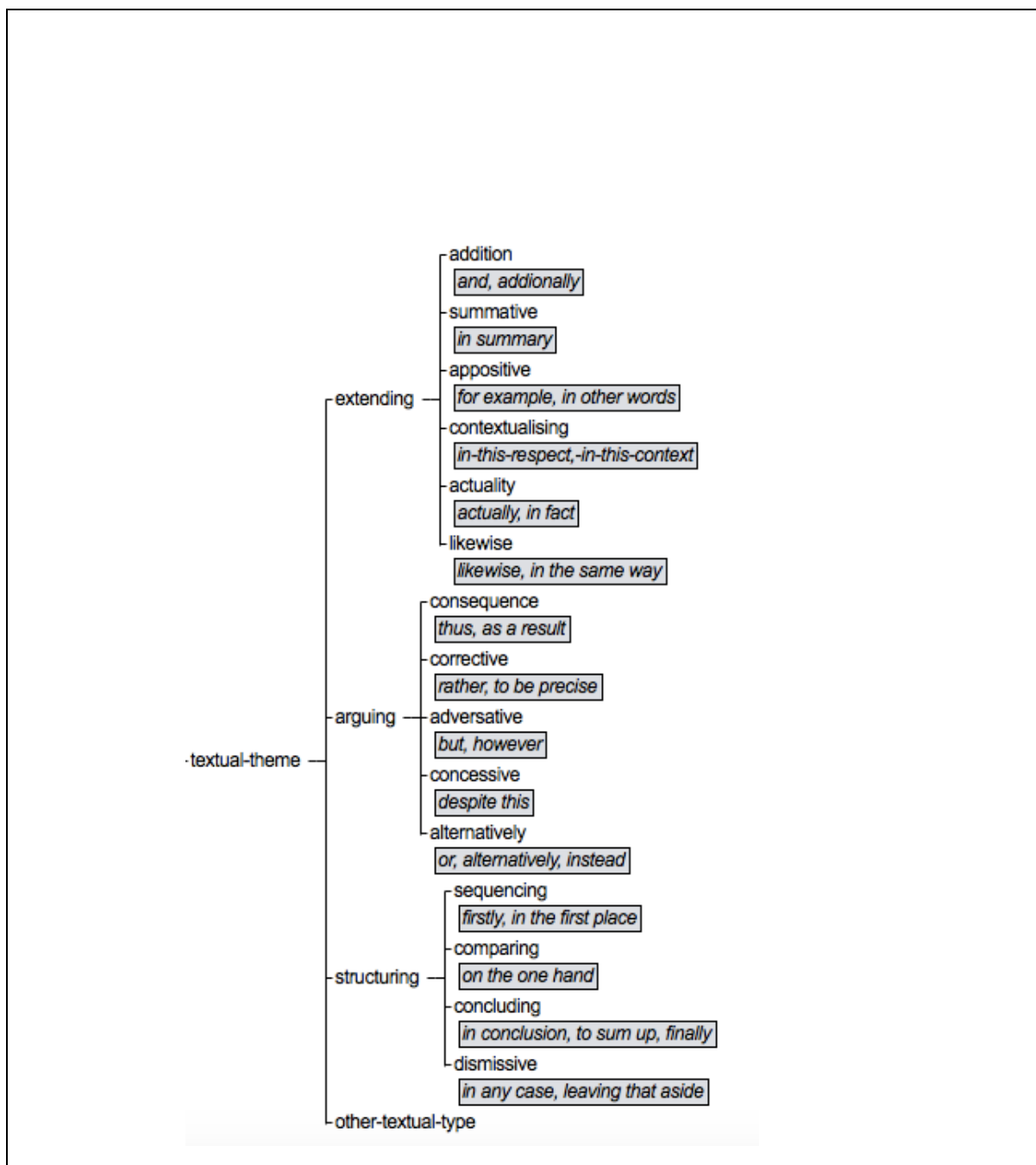
Theme	Rheme
Ideational	

(6)

*Though no growth is detectable using changes in absorbance as the measure , the cell is highly active with the proportions of cellular components changing.*

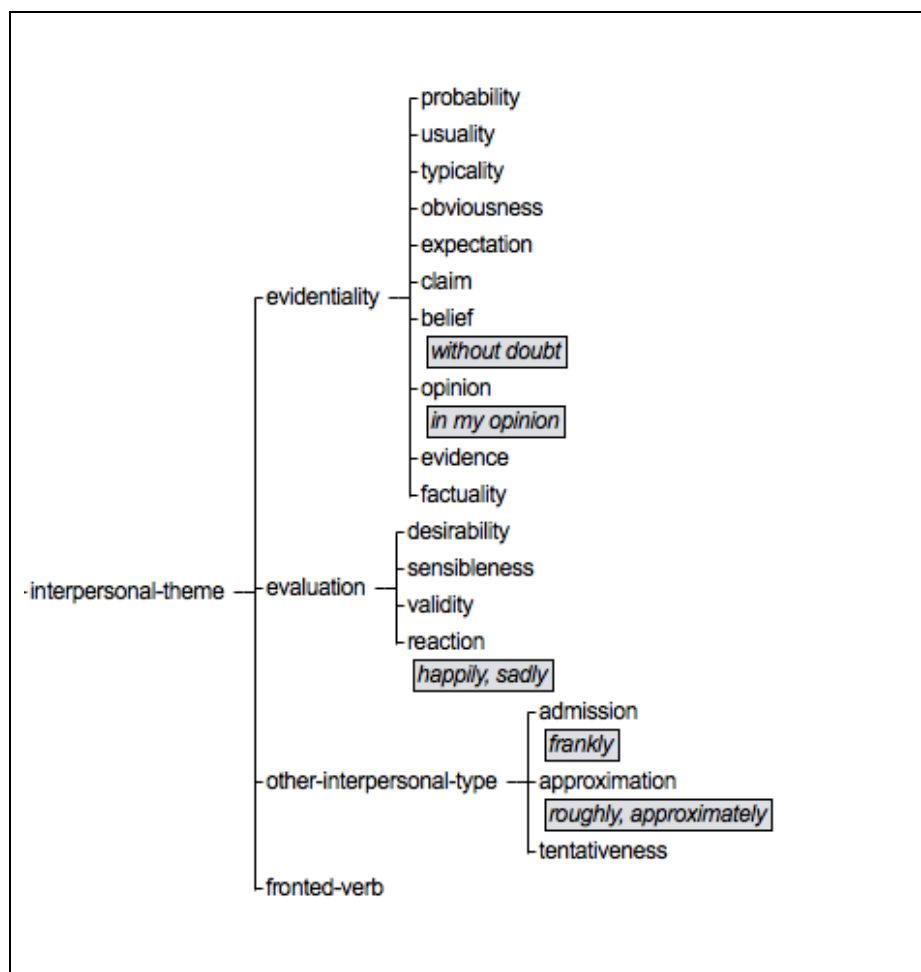
Theme		Rheme
Theme	Rheme	
Textual	Ideational	

In terms of textual Theme, four types were distinguished: Extending, Arguing, Structuring, and others (see Figure 2). The Extending textual Themes are those used to establish logical relations of addition, summary, apposition, contextualization, actuality, and likewise. The Arguing type expresses consequential, corrective, adversative, concessive, and alternative relations. The Structuring type functions to sequence, compare, and conclude as well as to mark dismissal. Examples of each of these categories are shown in Figure 2 and examples pertinent to our data will be presented in the analysis.



**Figure 2 Annotation scheme for Textual Theme using UAMCT**

Figure 3 shows how interpersonal Theme was classified. Distinction was made between expressions for evidentiality and evaluation. While interpersonal Theme for Evidentiality denotes meanings of probability, usuality, typicality, obviousness, and so on, those for evaluation express degrees of desirability, sensibleness, validity, etc. A third category of interpersonal Theme was identified for markers of admission, approximation, and tentativeness. In addition, fronted verbs were annotated as a component separate from the other three types. Examples of some of these categories are shown in Figure 3, and further examples will be given in the analysis of those that are pertinent to our data.



**Figure 3 Annotation scheme for Interpersonal Theme using UAMCT**

As seen in Figure 1, Ideational Themes were sub-classified into unmarked and marked ones, the latter further divided into adjuncts or complements. Unmarked ideational Themes in written academic English typically are grammatical Subjects.

After the corpus data were coded using UAMCT, the frequencies of different Theme groups and types of textual and interpersonal Theme were calculated, and comparisons were made between years of study and discourse type. The Chi square test was performed by UAMCT to indicate statistical significance of the difference of the features under investigation. The findings are reported and discussed below.

## **4. L2 Writing Development: Findings**

### **4.1 L2 Writing Development and Theme**

Using UAMCT, the following Themes were identified in a comparison of the 24 1<sup>st</sup> year and 24 3<sup>rd</sup> year texts. Table 4 shows that although the number of Themes increases from 1<sup>st</sup> year to 3<sup>rd</sup> year, this reflects the longer 3<sup>rd</sup> year texts rather than a qualitative difference. In both years, the proportion of textual Themes is considerably larger than the proportion of interpersonal Themes. The only significant difference is found in interpersonal Themes, which double in number and increase from 3.12% to 4.44% ( $p < 0.05$ ). This finding is similar to Ebeling and

Wickens study of L1 writers which found no significant difference in textual Themes, but did find differences in interpersonal theme.

**Table 4. Theme Groups by Year**

	Y1	Y3	Chi-square	Sig.
textual theme	503 (28.51%)	718 (29.01%)	0.08	
interpersonal theme	55 (3.12%)	110 (4.44%)	4.65	$p<0.05$
topical theme	1764 (100%)	2475 (100%)	0.00	

Although there is a significant difference from 1<sup>st</sup> to 3<sup>rd</sup> year in terms of the proportion of interpersonal Themes (Table 4), this is not maintained when we consider the Discursive and Experimental Discourse types separately (Table 5 and 6) although there is an increase in interpersonal Themes in both types of discourse. The textual Themes also increase in the Experimental texts, but in the Discursive ones there is a slight decrease. These changes, however, are not statistically significant.

**Table 5. Theme groups in Discursive writing by Year**

	Dis-Y1	Dis-Y3	Chi-square	Sig.
textual theme	288 31.00%	452 29.74%	0.44	
interpersonal theme	39 4.20%	85 5.59%	2.33	
topical theme	929 100%	1520 100%		

**Table 6. Theme groups in Experimental writing by Year**

	Exp-Y1	Exp-Y3	Chi-square	Sig.
textual theme	190 22.57%	239 24.77%	1.20	
interpersonal theme	15 1.78%	22 2.28%	0.56	

topical theme	842 100%	965 100%
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When we compare the discourse types in year 1 and 3 separately, it is found that the differences in textual and interpersonal Themes between Discursive and Experimental texts are significant in year 1 and remain so in year 3. Discursive writing tends to use consistently more textual and interpersonal Themes than Experimental writing in both years of study ( $p<0.01$ ) (see Tables 7 and 8).

**Table 7. Theme groups across discourse types in Year 1**

	Dis-Y1	Exp-Y1	Chi-square	Sig.
textual theme	288 31.00%	190 22.57%	15.95	$p<0.0001$
interpersonal theme	39 4.20%	15 1.78%	8.73	$p<0.01$
topical theme	929 100%	842 100%		

**Table 8. Theme groups across discourse types in Year 3**

	Dis-Y3	Exp-Y3	Chi-square	Sig.
textual theme	452 29.74%	239 24.77%	7.26	$p<0.01$
interpersonal theme	85 5.59%	22 2.28%	15.72	$p<0.0001$
topical theme	1520 100%	965 100%		

Tables 7 and 8 show that Discursive writing has around 30% of clauses with textual Themes compared to around 23% for Experimental writing, and Discursive writing uses interpersonal Themes in around 5% of clauses, compared to around 2% for Experimental writing. In other words, Discursive writing in general uses more textual and interpersonal Themes than Experimental writing. This was perhaps to be expected in that Discursive writing is generally more variable, more persuasive, more argumentative and importantly more individual, where Experimental writing tends to follow the expected norms of the sciences in its presentation. Thus, writers in Arts, Humanities and Social Sciences have to work harder to

make their structures and positions clear because they are expected to be distinctive. In the sciences the structures are more widely used and so do not need to be so explicitly signalled. The general finding of greater use of textual Themes compared to interpersonal Themes holds across both Discursive and Experimental writing.

In the next three sections, we examine differences in subcategories of Textual, Interpersonal and Topical Themes respectively to find out which categories of Theme are common in the two discourses, and if they show development from 1<sup>st</sup> to 3<sup>rd</sup> year.

## 4.2 Writing Development and Textual Theme

The UAM system network has fifteen main sub-categories of textual Theme (Figure 2). Although little significant difference was found between 1<sup>st</sup> and 3<sup>rd</sup> year use of textual Themes (the frequencies can be seen in Appendix B), highly significant differences were found between Discursive and Experimental texts in nine of the fifteen sub-categories, where Discursive texts consistently use more textual Themes. The most populated categories for Discursive texts are the arguing adversative and consequence set, with the items in bold in Table 9 the most frequent.

**Table 9: Textual Theme Categories Part 1**

Categories	Examples
Arguing adversative	<i>But, <b>however</b>, on the contrary, <b>still</b>, on the other hand, in contrast</i>
Arguing: consequence	<i>Consequently, <b>therefore</b>, hence, <b>thus</b>, so</i>
Extending: appositive	<i><b>For example, for instance</b>, in other words</i>
Structuring: sequencing	<i><b>First, firstly, second, secondly, third, thirdly, ...</b></i>
Arguing: concessive	<i><b>Nevertheless, nonetheless, yet</b></i>
Structuring: concluding	<i><b>In conclusion, finally, lastly, to conclude</b></i>
Extending: likewise	<i>Likewise, similarly, in the same way</i>

What is perhaps surprising is that structuring and concluding Themes are also significantly more frequent in Discursive texts, while additive Themes are not. The value of identifying three factors or points in an argument, and of telling the reader that you are reaching a final or concluding point appears to also be characteristic of Discursive texts, as seen in Text Samples 1 to 6 where textual Themes are indicated in bold.

- (1) **Dis-Yr1:** Such arrangements required major organisational overhauling and consequently the company had to interact with a range of social classes in the provinces which it was now governing. **For example**, the company had to maintain a permanent bureaucracy and a standing army, the latter being used for dual purposes.



**First**, it was used to defend the company's investment interest ... **Second**, it was also used as a means to ...

- (2) **Dis-Yr3: For example**, "Lenin and Stalin enjoyed wearing pink under flip-flops" is highly unlikely to have been uttered before still they had meaning before we uttered them (Lowe 1995). **However**, once uttered or thought of we also have an idea associated with them. **Still** the argument can be made that there are sentences are meaningful despite lack of a corresponding idea in anyone's mind. **Therefore** linguistic expressions don't necessarily require ideas to give them meaning.
- (3) **Dis-Yr1**: Common sense tells that if the offer seems reasonable, one should take it before the competitor. **Thus**, in the light of limitations of modelling, the flexibility to address emergent changes in strategy making is more crucial ...
- (4) **Dis-Yr3**: Since service industries are more intangible in nature, the company brand name ensures customers a seal for approval for the service offerings. Nevertheless, it is argued that it may be two-sided as well. The downside of corporate branding is steep especially for companies which are faced with repeated amounts of scandals. The negative publicity associated with the company ...
- (5) **Exp-Yr3**: In terms of the span of an event in woodland there is great variation, dominant trees may live up to 300 or 500 years while significant changes may occur within a very short period of time. **For instance**, a storm may level stand trees in a large area within an hour, but the successive reformation of woodland would take several decades after such a disturbance. Gap formation ...
- (6) **Exp-Yr3**: I learned lots of useful practical knowledge from this DSP lab. ...I referred to ... The whole lab work is like a small project, from design to realisation. I can see how industry works ... **Finally**, I have proven that the design met the third order Butterworth filter specification ...

Comparison of the Discursive texts in 1st year and 3rd year shows significant difference in two categories of textual theme, although the raw counts in both cases are very small (as seen in Table 10). Summative Themes, such as '*in short, in summary, to sum up, to summarize*', increased from 0 to 2.33% ( $p < 0.1$ ), whereas likewise Themes, such as '*in this case, in this way, in this sense*', decreased from 3.45% to 0.58% ( $p < 0.1$ ).

**Table 10: Textual Theme Categories Part 2**

	Dis Yr-1	Dis Yr-3	Chi	Sig.
Summative	0 (0.00%)	4 (2.33%)	2.736	$p < 0.1$
Likewise	4 (3.45%)	1 (0.58%)	3.338	$p < 0.1$

Greater difference in the use of textual Themes was found in Experimental texts between the 1st year and the 3rd year (Table 11). The frequency of structuring Themes increased by year. In the year 1 texts, only two concluding Themes were used, whereas in the year 3 texts, in addition to concluding Themes, sequencing Themes, such as '*first, first of all, firstly, secondly, thirdly, to begin with*', were used more often in the 3rd year Experimental

texts. Among extending Themes, Themes for addition, such as '*and, furthermore, moreover*', decreased in frequency. Arguing Themes as a whole did not show a significant change in frequency. The distribution patterns of the subcategories, however, were considerably different. The 1st year Experimental texts used arguing Themes to express consequence most often, for example, '*therefore, hence, thus, consequently, as a result*'. The 3rd year texts, in comparison, used adversative Themes such as '*but, however, on the other hand*' and alternative Themes such as '*or, otherwise, instead*' more often.

**Table 11: Textual Theme Categories Part 3**

		Exp Yr-1	Exp Yr-3	Chi	Sig.
<b>Structuring</b>	Sequencing	0 (0.00%)	11 (73.33%)	4.156	$p<0.05$
	Concluding	2 (100.00%)	4 (26.67%)	4.156	$p<0.05$
<b>Extending</b>	Addition	93 (97.89%)	105 (90.52%)	4.917	$p<0.05$
<b>Arguing</b>	Consequence	46 (66.67%)	29 (35.37%)	14.685	$p<0.01$
	Adversative	22 (31.88%)	41 (50.00%)	5.058	$p<0.05$
	Alternatively	1 (1.45%)	9 (10.98%)	5.499	$p<0.01$

These findings on the subcategories of textual Themes reveal that the use of textual Themes increases not only in the overall frequency as shown in Table 6 but also in variety. While both Discursive and Experimental texts show a quantitative increase from first to third year, the nature of the development is different. This might reflect increasing confidence in using a greater variety of textual Themes in both discourse types, but also points to a growing recognition in Discursive texts of the importance of signalling conclusions, and in Experimental texts a switch away from more causal explanations (using fewer consequence Themes) to a greater consideration of alternatives (using more adversative and alternative Themes) as the writing matures.

#### **4.3 L2 Writing Development and Interpersonal Themes**

The number of interpersonal Themes is small, but Table 12 shows a significant difference between 1st and 3<sup>rd</sup> year. This section aims to characterise typical Themes at each year and to consider what this means for interpersonal Themes and expressions of Stance more generally.

Two of the UAMCT categories of interpersonal Theme showed significant differences: Obviousness and Evaluation. Other evidence of stance includes the use of modal verbs (manually identified).

**Table 12: Interpersonal Themes by Year**

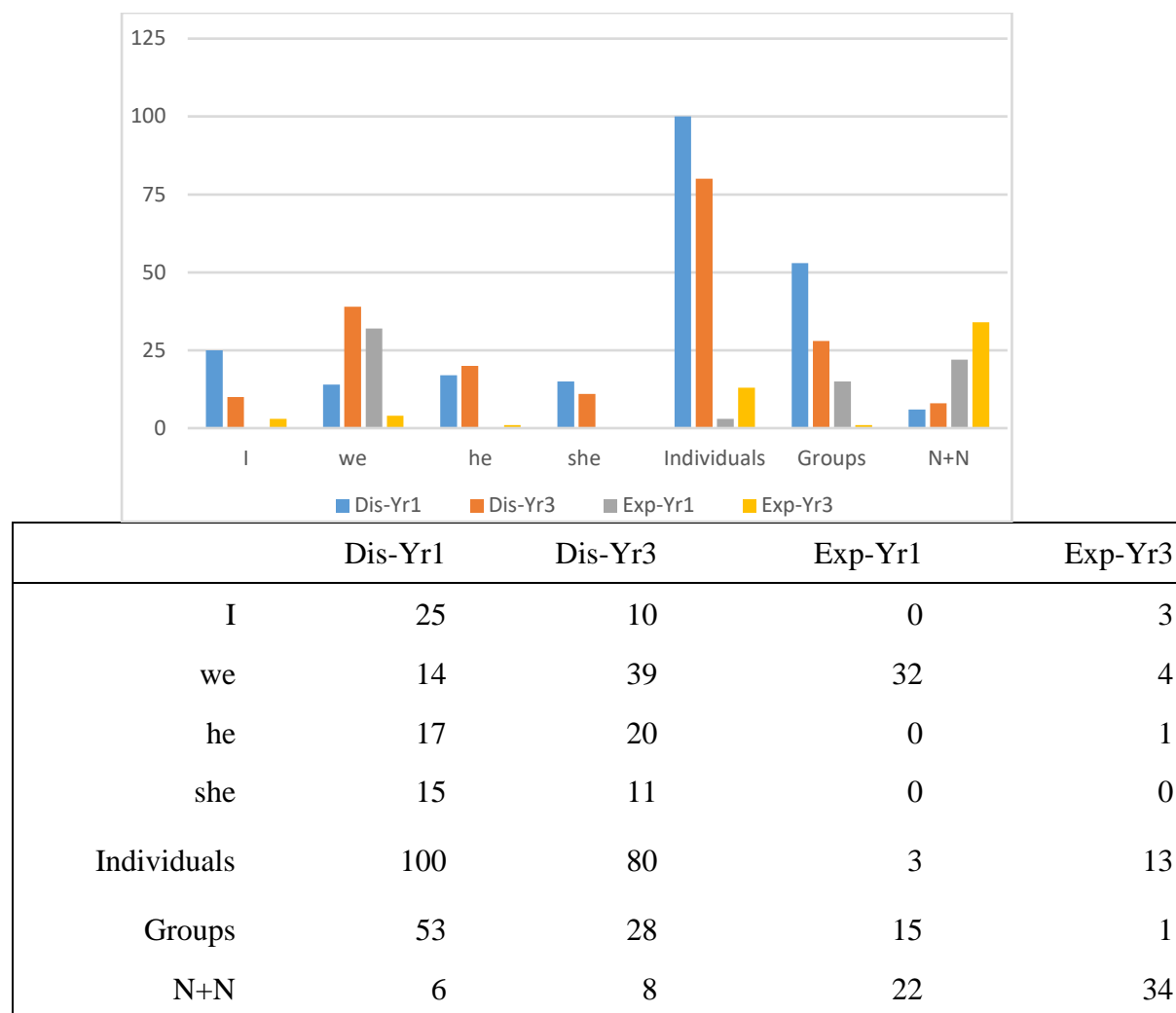
	Yr-1	Yr-3	Sig.	Examples
Evidentiality: obviousness	1	10	$p<0.1$	<i>naturally, of course, surely, clearly</i>
Evaluation	0	6	$p<0.1$	<i>in general, mainly, overall</i>
Fronted modals	5	14		<i>seem, would, could, might, can</i>

These interpersonal features are also significantly more frequent in the Discursive texts than the Experimental texts for Year 1 (Table 7) and for Year 3 (Table 8). Examples 1 and 2 show how interpersonal Themes and modals work together in final year texts:

- (1) **Naturally**, one **may** assume that they ... (AH3)
- (2) **Overall**, it **seems** that there are several reasons why banks and other lenders should accept a floating charge as a security (SS3)

Such an increase in interpersonal Themes points to a greater confidence expressed by the writer through Themes such as *naturally*, and *overall*, combined with a greater awareness of the importance of hedging through the use of modal verbs (*may*, *seem*). This could be an alternative means of expressing what Aull and Lancaster discuss in terms of approximate hedges (e.g. *essentially*, *largely*) where strong expressions such as *overall* are weakened or approximated with the use of modals.

#### **4.4 L2 Writing Development and Ideational (topical) Themes**



**Figure 4. Frequent unmarked Ideational Themes by year and discourse-type**

Figure 4 shows the frequency of different types of unmarked ideational Theme in the L2Dev corpus with notable changes in bold. In written English, the ideational Theme is known as the topical theme, and when unmarked it typically coincides with the grammatical subject. Figure 4 shows that unmarked Themes are frequent in Discursive discourse, where the use of *I* that is frequent (11%) in first year has perhaps been replaced by *we* in 3<sup>rd</sup> year (20%). In contrast, the frequent use (44%) of *we* in Experimental discourse in 1<sup>st</sup> year has significantly reduced by 3<sup>rd</sup> year as writers become more expert at hiding themselves as actors in scientific discourse.

First year Discursive tends to have individuals (monarchs, influential thinkers, characters in fiction) and groups (characters, dynasties, countries, newspapers, academics, thinkers, women, men, traders, companies) as topical Themes, where the third year items are quite general (*children, teachers, people, taxpayers*). Although there are some N+N Themes in Discursive (*human nature, female character, glass shelf, target word*) the largest number of N+N Themes is found in Experimental (*wind tunnel, disc brake, temperature control, quality assurance*) and these more than double from 1<sup>st</sup> to 3<sup>rd</sup> year from 30% to over 60% of all unmarked topical Themes.

To summarize, three trends can be observed in topical Themes:

1. From 1<sup>st</sup> to 3<sup>rd</sup> year, there is a notable change in frequent personal Themes in both Discursive and Experimental, though these are realised differently. Discursive writing uses *we* more frequently, where Experimental uses *we* less. This suggests changes in authorial stance.

2. Individuals remain the most popular choice for Theme in Discursive writing. This reflects the enduring nature of Discursive writing as relating to specific people/ characters.

3. The N+N category in 3<sup>rd</sup> year Experimental discourse stands out as significantly higher than the equivalent in EXP-1 and in DIS-3. The examples given are typical of scientific language and reflect the focus of Experimental discourse on technical and scientific concepts.

Pulling these together, we see that from 1<sup>st</sup> to 3<sup>rd</sup> year, L2 Discursive writing replaces *I* as subject with *we*, and replaces individual subjects with groups or more abstract concepts.

In contrast, from 1<sup>st</sup> to 3<sup>rd</sup> year, L2 Experimental writing uses substantially more N+N constructions (Figure 4). This is consistent with the greater lexical density found in Experimental discourse. As with the textual and interpersonal Themes, an examination of subcategories of ideational Themes has provided evidence about the nature of Themes in L2 student academic writing.

## 5. Discussion and Conclusion

In this paper we set out to investigate development from first to third year in the L2Dev corpus of second language undergraduate university student writing. We examined literature on university student writing development in L1 and L2, and focused our analysis using the UAMCT system classification of the SFL notion of Theme. From the literature we noted that most studies examined what we call here Discursive writing, and at times in short in-class texts. In contrast our data is longer take-home assignments written by successful L2 students. We also compared these across Discursive and Experimental writing and in both these ways have extended what is known about L2 writing at university.

In general terms, we found that the length and lexical density of L2 3<sup>rd</sup> year assignments was greater than those for first year assignments (Table 2). We also found that the difference between L2 first and third year assignments was greater in length for Discursive assignments, and greater in density for Experimental assignments (Table 3). In other words, there is evidence that L2 development takes a different path across the two discourse types. Although disciplinary differences have been noted (e.g. Ebeling & Wickens 2012), these have tended to be within Discursive assignments. Our analysis, in contrast, compares Discursive and Experimental discourses.

In the L2Dev corpus as a whole we found substantially more textual Themes than interpersonal Themes, with around 29% of sentences having a textual Theme compared to fewer than 5% of sentences having an interpersonal Theme (Table 4). This is consistent with previous studies. When we compared Theme in general across the two year groups, there was no significant difference in terms of textual theme, but there was a significant difference between 3.12% and 4.44% for interpersonal Themes (Table 4). This contrasts with Hewing's findings for Geography where 3<sup>rd</sup> year writing had more textual and more interpersonal Themes than first year writing, but is similar to Ebeling and Wickens' (2012) findings for Essays across disciplines.

Surprisingly perhaps we found no significant differences in use of textual or interpersonal Theme between first and third year texts for either Discursive writing or Experimental writing when each was considered independently (Tables 5 and 6). In contrast, when we compared Theme group across Discursive and Experimental writing, we found consistent and significant differences in that Discursive writing uses more textual Themes and more interpersonal Themes than Experimental writing in year 1 and in year 3 (Tables 7 and 8). As with the differences in length and lexical density, these findings suggest clear differences between Discursive and Experimental writing and suggest that there is more to uncover about L2 Theme development.

An examination of the subcategories of textual Theme shows that nine of the fifteen subcategories are used, particularly in Discursive writing. Of these only two show a significant

difference between first and third year (Table 7), namely ‘summative’ (e.g. *in summary*) and ‘likewise’ (e.g. *in this way*) but the raw counts in both cases are small. This explains the prevalence of textual Themes, but the lack of significant difference in textual Themes between first and third year in Discursive writing.

An examination of changes in subcategories of textual Theme between first and third year in Experimental writing (Table 8) shows significant differences in six categories (Table 8). Of these, the most populated are addition (e.g. *moreover*) and consequence (e.g. *therefore*) which both decreased from first to third year, followed by adversative (e.g. *however*) and sequencing (e.g. *first, second*) which both increased. Again these findings explain the lack of significant difference in textual Themes overall between first and third year in Experimental writing, but they point to two distinct trends.

Our examination of Theme groups found significant differences between years one and three in interpersonal Theme, and an examination of subcategories of interpersonal Theme shows where these differences can be found (Table 9). Only two of the subcategories showed a significant difference between the two year groups: Obviousness (e.g. *naturally, of course*) and Evaluation (e.g. *mainly, overall*). If we consider that ‘obviousness’ is similar to boosting, and evaluation is similar to hedging, then these findings are contrary to those of Aull and Lancaster for Discursive writing, but when combined with modals they could echo the increase in approximate hedges, as discussed above. In the L2Dev corpus, most interpersonal Themes are found in Discursive writing, which can be explained in that Discursive writing tends to expect more authorial presence and voice than Experimental discourse.

Finally, we examined topical Themes (Figure 4) in terms of pronoun use and nominal groups: First person pronoun use was less in third year than in first year texts, with Discursive texts showing a reduction in the use of *I* and Experimental texts showing a reduction in the use of *we*. This is consistent with Harwood’s (2005) findings about the use of personal pronouns across soft and hard disciplines in published research. In terms of nominal groups, there is an increase of N+N constructions, particularly in the Experimental texts. This is consistent with the greater lexical density found in Experimental writing (Table 1).

To conclude, there is certainly evidence of writing development in L2 student writing from first year to third year of undergraduate writing in both Discursive and Experimental discourse in our L2Dev corpus of successful student writing. In terms of Theme development, however, our study has not found sustained differences between first and third year writing in terms of textual or interpersonal Themes, though differences were observed. In contrast, our study has shown that significant differences exist between Theme use in Discursive vs Experimental discourses. Our study has also suggested development in terms of specific Theme categories within Discursive and Experimental writing, and has shown development in terms of topical Theme as suggested by increased lexical density, a move to a more abstract and/or technical universe of things, and an increase in nominal group complexity, most notably in Experimental discourse.

What is striking about our findings is that the texts we have isolated are written by students who have not taken extensive pre-university courses to learn how to write in English. We know this from the personal data they provided as part of the BAWE project. It is therefore reassuring that these writers can produce successful texts (i.e. with ‘good/excellent’ grades). It is also reassuring that these writers seem to develop their writing to conform more closely to expected norms in their broad disciplinary groups, despite absence of obvious training in writing. We assume that their increasing socialisation in their courses affords changes in their writing. This does not mean of course that L2 writing tuition at university should be abandoned. On the contrary. The texts that we have analysed are the successful ones. Many L2 (and L1) students are not so successful. We also assume that explicit teaching where it differentiates

Discursive and Experimental trends could speed up writing development, and moderate it where it goes beyond what is needed.

### Acknowledgements

We are grateful to the ESRC for funding the project *An Investigation of Genres in Assessed Writing in British Higher Education* (RES=000-23-0800) that included the compilation of the BAWE corpus from which our L2Dev corpus is drawn. We are also grateful to South China Normal University for supporting Dr Xiao Chen's Visiting Scholar post at Coventry University, where this research originated.

### Endnotes

1. The term 'ideational Theme' is used here interchangeably with 'topical Theme', which expresses the experiential element in the Theme (Halliday 2004:52).
2. The BAWE corpus can be freely downloaded from the Bodleian Oxford Text Archive (OTA) and can be freely searched on the open SketchEngine. Links to BAWE in the OTA and SketchEngine, as well as to the BAWE Excel Spreadsheet with metadata used to make the selection of L2 texts, are available at [www.coventry.ac.uk/BAWE](http://www.coventry.ac.uk/BAWE).
3. The BAWE Genre Families are written in sentence case (e.g. Essays and Critiques) to differentiate them from essays in other projects.
4. The UAM Corpus Tool and system network (Figures 1-3) were downloaded from <http://www.wagsoft.com/CorpusTool/> and used to generate Tables 3 to 13. A new version of UAMCT is now available at [www.corpustool.com](http://www.corpustool.com).

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## Appendix A: Texts in the L2Dev Corpus

	Id	Genre Family	Discipline	L1
AH1	3125d	Essay	Applied Linguistics	Japanese
	3159a	Essay	Applied Linguistics	Portuguese
	0003j	Essay	History	Dutch
	0042e	Essay	History	Hindi
	0055b	Essay	Philosophy	Turkish
	0057a	Essay	Philosophy	Swedish
SS1	3021a	Critique	Anthropology	Slovak
	0132a	Critique	Law	Cantonese



	0003a	<b>Critique</b>	Sociology	Dutch
	0094a	<b>Essay</b>	Business	Finnish
	0070c	<b>Essay</b>	Politics	Swedish
	0139e	<b>Essay</b>	Politics	French
LS1	6008r	Explanation	Agriculture	Chinese
	0041a	Methodology Recount	Biological Sciences	Mandarin
	0100c	Methodology Recount	Biological Sciences	Chinese
	6025d	Methodology Recount	Biological Sciences	Chinese
	6131m	Methodology Recount	Biological Sciences	Japanese
	6081e	Methodology Recount	Food Sciences	Chinese
PS1	0258i	<b>Design Specification</b>	Computer Science	Hindi
	0210a	<b>Design Specification</b>	Engineering	Sinhalese
	0358d	<b>Explanation</b>	Engineering	Tamil
	0008b	<b>Methodology Recount</b>	Engineering	Mandarin
	0227a	<b>Methodology Recount</b>	Engineering	Sinhalese
	0356d	<b>Methodology Recount</b>	Engineering	Sinhalese
AH3	6173b	<b>Critique</b>	Applied Linguistics	Italian
	3061d	<b>Essay</b>	Applied Linguistics	German
	6203e	<b>Essay</b>	Archaeology	Polish
	3004b	<b>Essay</b>	English	German
	3155a	<b>Essay</b>	English	French
	6180g	<b>Essay</b>	Philosophy	Slovak
SS3	3018e	<b>Critique</b>	HLTM	Chinese
	6180c	<b>Critique</b>	Politics	Slovak
	0072a	<b>Essay</b>	Business	German
	0253e	<b>Essay</b>	Business	Malay
	0094g	<b>Essay</b>	Law	Finnish
	0377a	<b>Essay</b>	Law	Polish
LS3	6131t	Design Specification	Agriculture	Japanese
	0062c	Explanation	Biological Sciences	German

	0434a	Explanation	Biological Sciences	Chinese
	6131u	Methodology Recount	Agriculture	Japanese
	6215e	Methodology Recount	Biological Sciences	Chinese
	6008k	Methodology Recount	Food Sciences	Chinese
PS3	6102d	Design Specification	Cybernetics & Electronic Engineering	Chinese
	6107a	Design Specification	Cybernetics & Electronic Engineering	Chinese
	0254i	Design Specification	Engineering	Chinese
	0258a	Design Specification	Engineering	Hindi
	3039a	Explanation	Computing	Cantonese
	3094d	Explanation	Computing	Sinhalese

## Appendix B: Textual Themes

Feature	1 <sup>st</sup> year		3 <sup>rd</sup> year		Chi	Sig.
	N	Percent	N	Percent		
<b>TEXTUAL-THEME-TYPE</b>	<b>N=7720</b>		<b>N=10850</b>			
Extending	211	2.73%	288	2.65%	0.11	
Arguing	180	2.33%	268	2.47%	0.37	
Structuring	24	0.31%	43	0.40%	0.92	
other-textual-type	6	0.08%	4	0.04%	1.40	
<b>EXTENDING-TYPE</b>	<b>N=7720</b>		<b>N=10850</b>			
Addition	189	2.45%	252	2.32%	0.31	
Summative	0	0.00%	5	0.05%	3.56	+
Appositive	11	0.14%	13	0.12%	0.18	
Contextualizing	4	0.05%	7	0.06%	0.12	
Actuality	2	0.03%	10	0.09%	3.07	+
Likewise	5	0.06%	1	0.01%	4.31	++

<b>ARGUING-TYPE</b>	<b>N=7720</b>		<b>N=10850</b>		
Consequence	82	1.06%	107	0.99%	0.26
Corrective	2	0.03%	2	0.02%	0.12
Adversative	83	1.08%	125	1.15%	0.24
Concessive	7	0.09%	17	0.16%	1.52
Alternatively	6	0.08%	17	0.16%	2.27
<b>STRUCTURING-TYPE</b>	<b>N=7720</b>		<b>N=10850</b>		
Sequencing	14	0.18%	30	0.28%	1.73
Comparing	1	0.01%	1	0.01%	0.06
Concluding	9	0.12%	12	0.11%	0.01
Dismissive	0	0.00%	0	0.00%	0.00

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